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ROYAL ONTARIO MUSEUM OF ZOOLOGY

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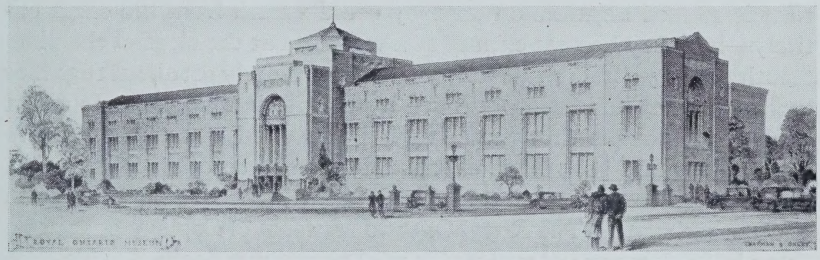

THE EASTERN SECTION OF THE NEW EXTENSION OF THE ROYAL ONTARIO MUSEUM OF WHICH THE MUSEUM OF ZOOLOGY OCCUPIES THE WHOLE OF THE THIRD FLOOR.

More than four years have elapsed since Bulletin 4 of the Royal Ontario Museum of Zoology appeared. The first four numbers of this publication were issued by the Department of University Extension, University of Toronto. Although a special fund is not yet available from which the Museum may issue the Bulletin as a regular publication, it is planned to publish an occasional number as funds permit.

The Bulletin is designed as a means of informing the friends of the Royal Ontario Museum of Zoology of its activities and as a medium for the publication of popular articles of interest and value to teachers and their classes and the growing numbers of amateur naturalists who find in natural history a constructive outlet for their leisure.

It is regrettable that there can be no certainty or regularity of publication of news from the Museum or of the popular and scientific papers by the staff but it is hoped that the time will come when some friend will endow the Royal Ontario Museum of Zoology with a publication fund which will solve this problem in some measure.

THE MUSEUM'S COLLECTION OF PASSENGER PIGEONS

A museum, to most people, is an institution where exhibits are displayed to interest and enlighten the visitor. This is indeed an important function of our Museum, but back of this is the fundamental task of bringing together objects and facts and devising methods of preserving these for generations to come. To illustrate this, consider

one special activity of the Museum and of an interested friend and benefactor, Mr. Paul Hahn of Toronto.

The passenger pigeon was once looked upon as a bird whose numbers could never be seriously disturbed. Millions upon millions of these swift, trim pigeons passed from one section of wooded eastern North America to another in the days of the early pioneers. At that time it seemed impossible that they could vanish from the earth entirely—but they became extinct as a wild bird at the close of the nineteenth century! Established museums immediately set about to gather specimens that had been preserved by private individuals. It might have been thought that the salvaging of stuffed birds by an active campaign would soon have exhausted this source of supply so that museums to come later would find it difficult, if not impossible, to obtain specimens. The Royal Ontario Museum of Zoology opened its doors in 1913, many years after the wild pigeon was doomed. To-day, however, it possesses a valuable collection of passenger pigeons. This is due in large part, as already suggested, to the efforts of Mr. Hahn, a naturalist and enthusiastic collector, who has persistently sought out specimens of this extinct species. Old cases of stuffed birds in attic and cellar, city and farm, have been explored and from them many specimens have been rescued from dust and vermin for the Museum, where they are safely stored for posterity. Mr. Hahn will continue his search until locally all such material is properly installed in the collection of this permanent institution. This is a public-spirited work and commendable in every respect. In the matter of saving specimens of a vanished species it is a case of "now or never". Regrettable intances have come to light where good specimens have been destroyed by fire, rats and insects. This is the ultimate fate of all specimens that do not reach the perpetual safekeeping of some museum. The museum's function in our society is to preserve material which constitutes the irreplaceable groundwork of human knowledge, and passenger pigeon specimens definitely belong to this class of material.

THE PASSENGER PIGEON HABITAT GROUP

On January 3rd, 1935, Hon. Dr. L. J. Simpson, Minister of Education, opened the Passenger Pigeon Habitat Group shown in the accompanying photograph. Ontario was within the area frequented by this extinct bird and this group recreates such a scene as must have been commonly witnessed by the pioneer settlers of the province.

What is a Habitat Group ?

A museum exhibit which depicts an animal amid a representation of its natural surroundings is known as a habitat group. The most satisfying, inclusive and naturalistic type of habitat group includes a panoramic picture as a background. The exhibit thus deals not only with the form and behaviour of the particular animal which is the subject of the habitat group, but it includes numerous facts pertaining to its associations in nature, even to the extent of conveying a general impression of the physiography of a region in which it lives, or has lived, if it be historic. In effect, then, the panoramic habitat group brings to the eye of the museum visitor, within the confines of a museum case, many square miles of nature.

The habitat group tells its own story to all who can see, in much the same way as nature out-of-doors reveals facts to us. The movement of the living animal is absent, of course, but there are compensating advantages such as ease and certainty of observation, elimination of distractions and concentration of incidents. The completeness of the story told by the group is dependent on the powers of observation of him who inspects it.

The Story of the Passenger Pigeon Group

The selection of the scene which forms the setting for the passenger pigeon group was made in the valley of the Credit River, Peel County, Ontario. Here, as elsewhere in this latitude of old Ontario, the pigeon flights occurred as the group depicts. Because of the scenic beauty of the Credit valley and because the upper region still retains some semblance of early-day conditions, this site was preferred to several other possible ones. The actual view chosen is a south-by-east aspect from the rising ground on the north side of the river within a triangle marked by the villages of Forks-of-Credit, Caledon and Cataract.

The physiographic features of the distant landscape are reproduced as they are to-day,—the great escarpment in the front, the vague river course at its base and the broad valley on the left. The

foreground is, for the most part, imaginary. A pioneer's clearing is represented, bounded by the stake-and-rider fence of the period and a glimpse of a log cabin is visible over the rolling ground. This part of the scene is as we might have found it in the 1860's.

To assist the observer in fixing the season, a suggestion of recent "sugaring" activities has been introduced in the immediate foreground. By mid-April, however, the sap has almost ceased its spring run but the hand-made cedar pails have not as yet been gathered for storage. Such details as the patches of melting snow from a belated fall which have not yet been completely erased by the increasing warmth of the morning sun help the observer to appreciate the time of day and year.

The visitor inspecting the exhibit should imagine himself standing at the edge of an old beech-maple forest overlooking the pioneer's clearing. The great pigeon flight is under way and will perhaps continue throughout the day. Flocks are breaking away from the main stream to alight in the clearing or enter the woods for feeding. Some drink at the snow pools near the woods, others help themselves to the maple sap still to be found in the pails. Others stop to rest in the trees and on the ground or preen themselves, while still others move forward in straggling bands in search of last autumn's beechnuts concealed beneath the snow-pressed leaves of the woods. A male and female in the foreground touch bills as is the way with pigeons. The male is more resplendently dressed than is the female. His plumage is more colourful and his tail feathers are noticeably longer.

As accessories to the group, several of the early spring flowers characteristic of the hardwood forest have been reproduced in wax. Hepaticas (*Hepatica acutiloba*) with their leaves which have persisted throughout the winter are to be seen here and there in the foreground. A typical plant of this species is conspicuously placed by the maple tree and sap pail in the immediate left foreground. The next most numerous spring flower in the group is the bloodroot (*Sanguinaria canadensis*). A typical cluster of this plant showing the unfolding of its white bloom is found near the front of the case at the right and left. On the left front two plants of the spring beauty (*Claytonia virginica*) are to be found. A profuse growth of the early leaves of the yellow adder's tongue (*Erythronium americanum*) also known as the fawn lily and dog-tooth violet, carpets a part of the foreground. This plant blossoms at a somewhat later date. An occasional scarlet-cup mushroom (*Peziza*) presents its vivid colour through the dry leaves.

Additional accessories include the yellow-bellied sapsucker (*Sphyrapicus varius*), a mid-April migrant, cluster flies and butterflies of species which hibernate as adults and appear in early spring.

THE DISAPPEARANCE OF THE PASSENGER PIGEON

The passenger pigeon is extinct; not a single individual now survives although at the time of the early settlement of Ontario it occurred in numbers greater than those of any species of bird now found here. Men who knew it in the days of its abundance tell us that sometimes the flocks returning from the south in spring were so dense as to "darken the sun".

These birds were an important item of food to the early settlers. Their arrival in spring was welcomed because they supplied a wholesome change in the meat diet of the pioneers. The pigeons were also killed for shipment to cities, in some of the northern states of the United States thousands of men being employed in hunting them for this purpose. In 1869 from the town of Hartford, Michigan, three carloads of pigeons were shipped to market each day for forty days, or a total of 11,880,000 birds. It is recorded that in 1878 in the vicinity of Petoskey, Michigan, "fully fifty teams were engaged in hauling birds to the railroad station. The road was carpeted with feathers, and the wings and feathers from the packing houses were used by the wagonload to fill up the mudholes in the road for miles out of town."

The pigeons were not an unmixed blessing to the pioneer. They fed on his crops, sometimes completely destroying whole fields of freshly-seeded grain in spring or the unharvested crop in summer. Farmers were not sorry, therefore, to see their numbers reduced and we are told that sometimes they drove their hogs into the woods where the pigeons nested and knocked the helpless young from trees so that the animals might feed on them.

The pigeons rapidly grew fewer in the face of such devastating slaughter so that they were never common after 1880. Their decrease was due not only to the killing of such large numbers but to the reduction of the woods in which they nested through the clearing of more and more of the land.

The last wild specimen was collected in 1898. All recent reports are believed to be based on some other species, usually the mourning dove. An unsuccessful attempt was made to perpetuate the species in captivity but the last living passenger pigeon, "Martha", died in the Cincinnati Zoological Gardens in 1914.

CURRENT NATURE NOTES

Profound changes are occurring in the world of animal life in Ontario this year. The phenomenal fluctuation in the numerical status of the snow-shoe rabbit or varying hare (*Lepus americanus*) is now in one of its striking phases. The population of this animal fluctuates between periods of great abundance and great scarcity and at the present time it is declining in numbers in much of Ontario south of the French river after having reached its period of abundance during the summer of 1933. In many areas of northwestern Ontario this hare is still abundant but its decline there is looked for during the coming year.

The situation with reference to the ruffed grouse (*Bonasa umbellus*), which also undergoes marked fluctuations in numbers, is much the same as with the hare. Its numbers have decreased in the southern and eastern sections but it is still plentiful north-westward. It is just ten years since grouse previously became scarce following a period of abundance.

The phenomenon of marked periodic fluctuation in numbers is not confined to varying hares and ruffed grouse, however. The sharp-tailed grouse (often incorrectly called prairie chicken) *Pedioecetes phasianellus*, reached a peak of abundance in different sections of Canada during the past two years. The population (of a northern race of this species) occupying the Hudson and James bay watersheds of northern Ontario and Quebec apparently reached its saturation point in the summer of 1932 and culminated in a pronounced emigration southward during the following autumn and the early winter period of 1932-33. There is no evidence that these emigrants returned to their northern breeding range, all evidence pointing to their near or total disappearance from the more southern territory into which they emigrated. It is reasonable to suppose that the popularion of this race of the sharp-tailed grouse is now at a low ebb in its northern fastness.

Another far northern bird which it is reasonable to assume attained a peak of numbers recently, after which its popularion was scattered and probably decimated, is the willow ptarmigan (*Lagopus lagopus*). This ptarmigan normally breeds in the barren tundra region of Canada north of the evergreen forests but regularly winters somewhat south of this range. In the autumn of 1933 and the winter of 1933-34, the species advanced southward in great numbers over a broad front, appearing in areas far removed from its normal range. Such a movement can reasonably be interpreted as culminating a peak of numbers. Data on the final fate of the individuals concerned in such a movement

are very incomplete but undoubtedly their numbers were steadily reduced by various agencies and it is possible that few, if any, of these emigrating birds returned to their northern range. A great reduction of the willow ptarmigan population therefore seems certain.

The general reduction of grouse-like birds in the north and possibly of hares also would be expected to produce a food scarcity for predators which habitually feed upon such animals. These predators would consequently either starve or be forced to move out of the region. It is, therefore, of interest to note that there occurred during the fall of 1934 a flight of goshawks south and eastward into territory where they appear only after rather long intervals. Previous flights occurred during the winters of 1926-27, 1916-17, 1906-07, 1896-97. Some of these flights were very noteworthy, such as those of 1896 and 1906. That of 1916 was not particularly marked. The present incursion of goshawks is perhaps larger than any since 1906. If this incursion is due, as suggested, to the scarcity of grouse, ptarmigan and perhaps hares in their native haunts, the nine or ten year periodicity shown in their southward movements is dependent on a nine or ten-year cycle of abundance and scarcity in these animals.

The present winter is also noteworthy because of the appearance southward of considerable numbers of snowy owls. The normal home of this owl is in the Arctic regions. While it may be seen almost any winter in southern Ontario, it appears in unusually large numbers about every four years. Previous large flights occurred in the winters of 1930-31 and 1926-27. These flights are believed to be caused by the four-year cycle of periodicity in the lemmings of the Arctic region. As the lemmings increase in numbers, the owls also increase with the abundance of food which these small mouse-like animals supply. When the lemmings become scarce, as they do every four years on the average, the snowy owls are forced to move out in search of food and many find their way to southern Ontario and even farther south.

As we gain a deeper insight into the workings of nature, we begin to understand the reasons for occurrences which before appeared inexplicable. The appearance southward of large numbers of northern birds and later of goshawks used to be looked upon as isolated facts of great interest to naturalists but their significance in the ebb and flow of animal life affecting the whole northern half of a continent was not suspected.